

## VENEREAL DISEASES IN CANADA\*†

BY

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For many years in each of the Canadian provinces, the law has required that any person suffering from or suspected to be suffering from a venereal disease shall place himself under the care of a physician, and it has been the duty of that physician to report such cases to the Provincial Department of Health.

It was not until 1944, however, that, as the result of a recommendation of the Dominion Council of Health, a Federal-Provincial advisory body, machinery was set up to collect venereal disease incidence figures on a systematic and comparable basis for the whole country. At that time, a standard and confidential notification form (Form N.H.1, Fig. 1, opposite page) was introduced for the use of physicians in reporting to Provincial Departments of Health, which in turn transmitted weekly summaries to the Dominion Bureau of Statistics. With minor modifications, this system of reporting venereal diseases has been continued to the present time. Concurrently with improved reporting, the provincial public health laboratory directors, together with the national Laboratory of Hygiene, participated in a programme to standardize the performance and interpretation of serological tests for syphilis throughout Canada.

Although it is presumed that the high incidence rates of venereal diseases in military personnel during the two world wars were paralleled by increased rates in the civilian population, accurate venereal disease statistics on a national basis are not available before 1944. It is necessary when examining trends with any degree of confidence, to confine attention to the period subsequent to the second world war. It is apparent from Fig. 2 that Canada, in common with many other countries, has been favoured with a dramatic decline in venereal disease rates since the post-war peak of 1946. Since that year the rate for total venereal disease has been reduced from 337.2 per 100,000 to 107.9 per 100,000 in 1955, a decline of 68.0 per cent. Syphilis of all types has declined steadily year by year from a rate of 137.8 per 100,000 in 1944, to 15.5 per 100,000 in 1955, a reduction of 88.7 per cent. Since 1946 the incidence of gonorrhoea has decreased from 214.0 per 100,000 to 92.3 per 100,000, a decline of 56.8 per cent. It is significant that since 1951 the reported incidence of

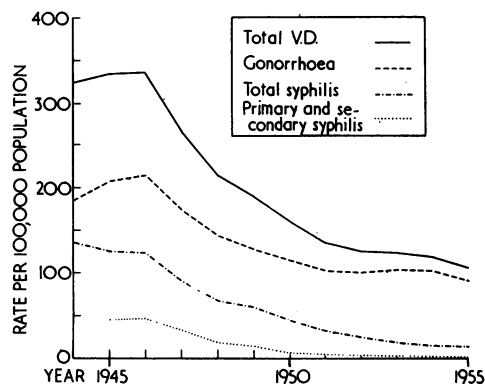


Fig. 2.—Venereal disease rate per 100,000 population in Canada, 1944-55.

gonorrhoea has fluctuated within narrow limits, which would seem to indicate that the "hard core" of this disease has been reached.

The decline in total venereal disease rates over the past few years and the ever shrinking proportion of this total contributed by syphilis are shown in Fig. 3.

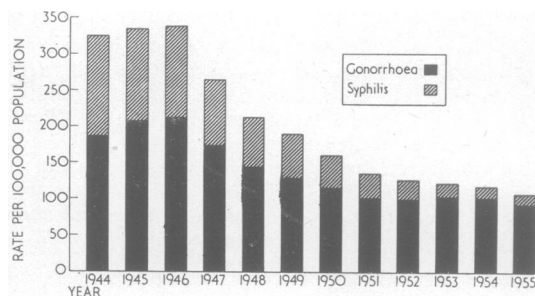


Fig. 3.—Total venereal disease rates per 100,000 population in Canada, 1944-55.

It will be noted that while syphilis constituted 42 per cent. of the reported total venereal disease rate in 1944, this proportion had decreased to 14 per cent. by 1955. In making this comparison, however, it is felt that one should be mindful of the relative completeness of reporting of syphilis and gonorrhoea. It is probable that physicians depend less on laboratory procedures for the diagnosis of gonorrhoea than for that of syphilis. Moreover, the ease and low cost of treating gonorrhoea with penicillin has lessened

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† Invited article.

(FRONT)

<b>CONFIDENTIAL</b>		DOMINION OF CANADA		Regn. No. .... <small>(Leave Blank)</small>
<b>NOTIFICATION OF VENEREAL INFECTION</b>				
Name of Patient..... <small>(Surname)</small>		City, Town, Township..... <small>(First Names)</small>		Sex.....
Address .....				
Age..... Single <input type="checkbox"/> Married <input type="checkbox"/> Widowed <input type="checkbox"/> Divorced <input type="checkbox"/> Separated <input type="checkbox"/> Race.....				
<b>SYPHILIS</b> Duration of Infection .....      Previous treatment for this infection: Yes <input type="checkbox"/> No <input type="checkbox"/>				
PRESENT CLASSIFICATION				
<input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Latent <input type="checkbox"/> Cardiovascular <input type="checkbox"/> Neurosyphilis <input type="checkbox"/> Other tertiary <input type="checkbox"/> Prenatal (Congenital) <input type="checkbox"/> Other				
By whom .....				
CLINICAL AND LABORATORY CONFIRMATION OF DIAGNOSIS				
Chancres:      Yes <input type="checkbox"/> No <input type="checkbox"/> Darkfield:      Pos <input type="checkbox"/> Neg <input type="checkbox"/> Blood Test:      Pos <input type="checkbox"/> Neg <input type="checkbox"/> Cerebrospinal Fluid:      Pos <input type="checkbox"/> Neg <input type="checkbox"/> Clinical Findings:      Yes <input type="checkbox"/> No <input type="checkbox"/>				
<b>GONORRHOEA</b> Duration of Infection .....      Previous treatment for this infection: Yes <input type="checkbox"/> No <input type="checkbox"/>				
<input type="checkbox"/> Ophthalmia Neonatorum      Smear:      Pos <input type="checkbox"/> Neg <input type="checkbox"/> <input type="checkbox"/> All other forms      Culture:      Pos <input type="checkbox"/> Neg <input type="checkbox"/> Clinical Findings:      Yes <input type="checkbox"/> No <input type="checkbox"/>				
<b>OTHER VENEREAL DISEASE</b> <input type="checkbox"/> Chancroid <input type="checkbox"/> Lymphogranuloma Venereum <input type="checkbox"/> Granuloma Inguinale				
Reported by ..... M.D.      Date of Report ..... <small>(Signature of attending physician or name of clinic or hospital)</small> <small>(Month)</small> <small>(Day)</small> <small>(Year)</small>				
Address .....				
<b>MAIL, SEALED, in the special printed envelope provided for the purpose, to the Provincial Department of Health</b> <b>FORM N.H. 1      (OVER—MOST IMPORTANT)</b>				

(REVERSE)

<b>ALL VENEREAL DISEASE CASES HAVE CONTACTS. CAN THESE CONTACTS BE IDENTIFIED?</b>									
NAME OF CONTACT .....					NAME OF CONTACT .....				
ADDRESS .....					ADDRESS .....				
MUNICIPALITY .....					MUNICIPALITY .....				
OCCUPATION:		EMPLOYED BY:			OCCUPATION:		EMPLOYED BY:		
LIVING ARRANGEMENT		Parents <input type="checkbox"/> Own Home <input type="checkbox"/>		Relatives <input type="checkbox"/> Hotel <input type="checkbox"/>		Rooming <input type="checkbox"/> Transient <input type="checkbox"/>			
MARITAL STATUS		S <input type="checkbox"/> M <input type="checkbox"/> W <input type="checkbox"/> Div. <input type="checkbox"/> Sep. <input type="checkbox"/> Com. Law <input type="checkbox"/>		S <input type="checkbox"/> M <input type="checkbox"/> W <input type="checkbox"/> Div. <input type="checkbox"/> Sep. <input type="checkbox"/> Com. Law <input type="checkbox"/>					
AGE	SEX	RACE	HEIGHT	BUILD	AGE	SEX	RACE	HEIGHT	BUILD
			Short <input type="checkbox"/> Medium <input type="checkbox"/> Tall <input type="checkbox"/>	Thin <input type="checkbox"/> Medium <input type="checkbox"/> Heavy <input type="checkbox"/>				Short <input type="checkbox"/> Medium <input type="checkbox"/> Tall <input type="checkbox"/>	Thin <input type="checkbox"/> Medium <input type="checkbox"/> Heavy <input type="checkbox"/>
COMPLEXION		HAIR		EYES	COMPLEXION		HAIR		EYES
Pale <input type="checkbox"/> Fair <input type="checkbox"/> Dark <input type="checkbox"/> Florid <input type="checkbox"/>		Blond <input type="checkbox"/> Brown <input type="checkbox"/> Black <input type="checkbox"/> Red <input type="checkbox"/>		Blue <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Green <input type="checkbox"/>	Pale <input type="checkbox"/> Fair <input type="checkbox"/> Dark <input type="checkbox"/> Florid <input type="checkbox"/>		Blond <input type="checkbox"/> Brown <input type="checkbox"/> Black <input type="checkbox"/> Red <input type="checkbox"/>		Blue <input type="checkbox"/> Brown <input type="checkbox"/> Grey <input type="checkbox"/> Green <input type="checkbox"/>
OTHER IDENTIFYING CHARACTERISTICS:									
TYPE (pickup, friend, prostitute, etc.)					HOW MET:				
PLACE OF MEETING:									
DATE EXPOSED:		PLACE OF EXPOSURE:			DATE EXPOSED:		PLACE OF EXPOSURE:		
If more than two contacts are reported use second card Do you prefer to be responsible for locating and examining contact(s) Yes <input type="checkbox"/> No <input type="checkbox"/>									
D.B.S. 16441									

Fig. 1.—Notification form of venereal infection and contacts.

the incentive to report this disease in order to secure free penicillin which is routinely provided upon request by Provincial Departments of Health for syphilis and gonorrhoea. As a result, it would seem reasonable to believe that gonorrhoea is less completely reported than syphilis and that an extension of this trend may be expected.

It is interesting to note from Fig. 4 that, while the reported rates of syphilis of all types have undergone a rapid decline since 1945, the falling off of early or infectious syphilis has outstripped the decline in late syphilis. In 1945, early syphilis represented 37 per cent. of all reported syphilis, while by 1955 this proportion had diminished to 7 per cent. Only 128 cases of primary and 49 occurrences of secondary syphilis were reported for the whole of Canada in 1955, and medical schools now experience difficulty in finding early syphilis for clinical teaching purposes.

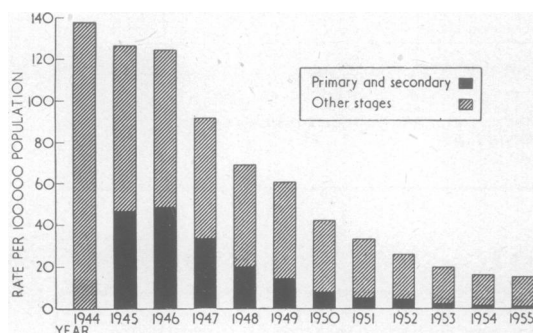


Fig. 4.—Total syphilis rates per 100,000 population in Canada, 1944-55 (1944 primary and secondary rates not available).

It is apparent, of course, that, with intensive case finding and improved treatment of early syphilis, fewer cases are being added to the reservoir of latent and late syphilis in the population. In fact this reservoir is becoming progressively depleted by case-finding procedures such as routine blood testing on admission to hospital, or in pre-employment examinations. As a measure of the effectiveness of early case finding and adequate treatment in preventing the occurrence of the late complications of syphilis, it is enlightening to study the figures for syphilitic admissions to Canadian mental hospitals over the past few years. In the period 1935 to 1954 the number of such admissions declined from 441 to 146, a reduction of 67 per cent. In 1935 syphilitic admissions represented 4 per cent. of the total admissions to Canadian mental hospitals while by 1954 this proportion had declined ten-fold to 0.4 per cent.

Although the discovery and treatment of early or infectious syphilis is no less important than it has always been, the major problem at present is the identification and treatment of the latent syphilitic

before irreversible changes have occurred. When considering the results of the prompt and more effective treatment of early syphilis on the shrinking residue of latent syphilis in the population, one should not overlook the present widespread use of penicillin and other antibiotics for a multitude of ills. The dosage of these commonly used antibiotics may not be of the order considered adequate for the treatment of latent syphilis, but it is interesting to speculate what their cumulative effects may be on the undiagnosed latent syphilitic.

Venereal diseases other than syphilis and gonorrhoea are of rare occurrence in Canada. Only 34 cases of chancroid were reported from the whole of Canada in 1954, mainly in seamen and servicemen who acquired the infection abroad. Similarly, lymphogranuloma venereum and granuloma inguinale are virtually unknown and the treponematoses (other than syphilis) do not occur. Whether non-gonococcal urethritis is to be considered a venereal disease is still open to question, and, although it is not a notifiable disease in Canada, there is little doubt that it presents an increasing problem.

It has been contended, with reason, that syphilis was on the decrease before 1900, and probably underwent its greatest regression shortly after the turn of the century. While many complex factors have combined to cause the remarkable decline in venereal diseases described above, much of the credit in recent years must be given to the continued pressure of provincial venereal disease control programmes. Each of the ten Canadian provinces has had an effective programme for a number of years, administered by the Division of Venereal Disease Control of the Provincial Health Department. In these programmes emphasis is placed on measures directed towards the person who is suffering from venereal disease, and towards the contacts of such persons, and on education. In brief, these activities may be divided into statistical, legal, case finding, contact tracing, diagnostic, therapeutic, and educational. The Provincial Venereal Disease Control Divisions are responsible for the collection of statistics of the incidence of venereal diseases, and are concerned with the application of the Venereal Disease Control Acts. Every effort is made to trace contacts of known cases of venereal disease as rapidly as possible in order to bring them to treatment when indicated on clinical, laboratory, or epidemiological grounds. Free diagnostic and treatment clinics have been established in the larger centres of each province, and in other areas free penicillin is provided and private physicians are remunerated for treating venereal diseases. With the decline of venereal disease incidence in recent

years there has been a shift in emphasis in most areas towards treatment by private physicians. Free consultative service is given to physicians in problem cases and educational programmes in venereal disease are directed towards the lay population.

By far the greater part of serological testing for syphilis in Canada is performed in the ten provincial public health laboratories or in their regional branches or other associated laboratories. Approximately 1.5 million blood samples are tested free of charge each year. This rather large number in a country with a population of about 15 million people and a low syphilis rate includes those collected in hospitals, as well as pre-employment, prenatal, and premarital specimens. In four Canadian provinces, Prince Edward Island, Manitoba, Saskatchewan, and Alberta, a serological test for syphilis on blood from both partners is required before a marriage licence can be issued. Prenatal tests are not required by law in any province, but are encouraged as sound practice. In one province prenatal tests are made in 86 per cent. of pregnancies and in another in 80 to 90 per cent. It is probable that the proportion tested in other provinces is similar. Blood testing is a part of routine pre-employment examinations required by many industries. In Ontario blood specimens for pre-employment tests make up 20 per cent. of the 500,000 samples examined annually.

For the past 14 years, the directors of all the provincial public health laboratories have collaborated with the national laboratory (Laboratory of Hygiene) in an effort to attain greater uniformity in test results. All antigens used by provincial laboratories or their branches are prepared and standardized at the Laboratory of Hygiene. In addition, complement is processed and dehydrated for distribution to the provincial laboratories. The use of reliable standard tests has been encouraged. Refresher courses for senior personnel in provincial laboratories are held from time to time with emphasis on the strict adherence to recommended procedures. Evaluation studies of test performances are conducted every second year and all provincial laboratories participate. Results have indicated a satisfactory degree of uniformity across Canada.

Until recently, the presumptive Kahn test had been used as a screening procedure in the majority of laboratories and all reactive specimens were examined with the standard Kahn and a complement-fixation test. With the increasing popularity of cardiolipin antigens, the VDRL microflocculation techniques are gradually being adopted in place of the Kahn tests. In at least four provincial laboratories, the specimens are first submitted to the VDRL test; all reactors are then examined with the Kolmer

complement-fixation test. In one laboratory the VDRL test is used as a screening procedure and all reacting sera are examined with the standard Kahn and Kolmer tests. In all laboratories a quantitative flocculation test (Kahn or VDRL) is performed on positive specimens and the results are reported in dilutions (or dils). Cardiolipin antigen has replaced the older lipoidal antigen in the Kolmer test. The antigen mixture in use is somewhat less sensitive than that recommended by Dr. Kolmer and has been accepted by the provincial directors as more suitable for routine sero-diagnostic work.

In the examination of spinal fluid, a complement-fixation (Kolmer) test and a protein estimation are usually performed. A cell count is made if the specimen is fresh. Colloidal tests are performed routinely in some provincial laboratories but only on request in others. There are differences of opinion as to the usefulness of the colloidal curve as a laboratory aid in the diagnosis of syphilis.

In 1951 a *Treponema Pallidum* Immobilization (TPI) test unit was established in the Ontario Provincial Laboratory. The services of this unit were offered without charge not only to the physicians of Ontario but to those of the other provinces as well. Later, a unit was established in the Manitoba Provincial Laboratory and more recently in the Laboratory of Hygiene. At present, collaborative studies are being organized to evaluate other treponemal antigen tests, particularly the *Treponema Pallidum* Complement-Fixation (TPCF) test.

The provincial venereal disease control programmes have received financial assistance from the Federal Government in the form of cash grants almost continuously since 1919. In 1948 the Venereal Disease Control Grant was incorporated into the National Health Grants Programme and increased to \$500,000 a year. These grants are made on the "matching" principle, the provinces contributing an amount at least equal to the Federal share. Since 1948, grants totalling over \$3,400,000 have been made available in this manner to extend provincial venereal disease control programmes.

In Canada it is felt that the remarkable decrease in venereal disease in the past few years is a matter for satisfaction but not for complacency. The trend that has been seen is certainly not irreversible. While it is true that the venereal diseases are not at present the important public health problem they once were, it can be readily foreseen that with changing conditions such as war or other national emergency they could rapidly become a major threat once again. Effective control programmes have been built up over many years and it would be false economy at this time to permit any relaxation of effort.